National Aeronautics and Space Administration

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Glenn Hardware Bound for International Space Station

Space communications technology will never be the same.

On Feb. 13, NASA's Glenn Research Center waved goodbye to its Space Communications and Navigation (SCaN) Testbed. Hundreds of employees from across the center dedicated the past 5 years to the design and development of the $105 million project. This summer, a Japanese rocket (HTV-3) will deliver the hardware to the International Space Station (ISS).

During a center gathering on the afternoon of shipment, Center Director Ray Lugo recognized the trials and accomplishments of the employees who worked on the Communications, Navigation, and Networking reConfiguration Testbed (CoNNeCT) project.

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Pictured right: Members of the CoNNeCT project team gathered to joyously send off the SCaN Testbed, top center.

C-2012-754 Photo by Bridget Caswell

FY 2013 Proposed Budget Adds Stability to Glenn Strategic Plan

On Feb. 13, NASA Administrator Charles Bolden unveiled President Obama's $17.7 billion budget proposal for NASA's fiscal year (FY) 2013. Glenn's share of the proposed budget is $658 million—representing an increase of $17 million.

"The proposed budget reflects stability and continued confidence in Glenn's proven capabilities," Center Director Ray Lugo said. "It plays well to Glenn's strengths and core competencies, and is well aligned with the center's strategic plan."

The following are highlights of proposed spending to offer insight to Glenn's role in future missions:

C-2012-901 Photo by Marvin Smith

Administrator Charles Bolden joined Center Director Lugo for the Feb. 21 All Hands to discuss the budget rollout.

Space Technology

In Glenn's proposed budget, $126 million is allocated to Space Technology for projects aligned with center technical expertise, including lead for the Cryogenics Propulsion Transportation and Storage Demonstration Mission, and support to the National Nanotechnology Initiative, as well as the Advanced Manufacturing Partnership. There also is a plan for increased support to Space Technology Research grants, and to Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) and Innovative Partnership Program contracts.

Aeronautics

Glenn's share of the proposed Aeronautics budget is $125 million. The nearly 17 percent decrease was driven by completion of the Integrated Systems Research propulsion testing in FY 2012, and reduction of hypersonic research in FY 2013. The agency is focused on accelerating the transition to the Next

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In This Issue

Straight *from the* Director

Patience + Courtesy = Safety

Center Director Lugo

A few years ago, while attending a course at the Federal Executive Institute, I was asked to fill out a questionnaire that assessed my wellness. Obviously, the questionnaire addressed areas such as my weight, exercise and medical history. However, what I did not expect to see were questions regarding one's lifestyle; in particular, things like driving habits.

Let me just say that I have had my fair share of tickets, most of them earned. After completing this class, I made a commitment to do better by slowing down, being more courteous and driving safer.

I have received three traffic citations since I have been in Ohio, and all within the first 6 months of arriving at NASA Glenn. One of the tickets I received happened when I attempted to enter traffic near Strongsville. I had been to lunch and was returning to the office. I was accelerating on the Pearl Road entrance ramp to Interstate 71 and was looking for a "hole" to merge into traffic. When I checked the oncoming traffic, I saw a truck in the far right lane that was accelerating to match my speed. I promptly reduced my speed and checked the lane again. To my surprise, the truck slowed down. This occurred two more times and I was now running out of on-ramp. In frustration, I stomped on the accelerator and got ahead of the truck, just as a Strongsville police officer clocked my speed.

If this lack of courtesy in traffic had been a single event, I would just accept the consequences and move on. But this kind of behavior seems to happen with regular frequency. Last Wednesday, I was driving a government car heading downtown for a speaking engagement. While merging on I-71 North, I once again saw a truck that was accelerating to keep me from merging into traffic. This same situation occurred on my return to the center. What really surprised me was that some of our own employees were preventing me from merging into the turning lane to our main driveway.

As human beings, we are imperfect, which is even more reason to be courteous to others. I think if we could slow down and be a little more respectful of the other people on the road, I think we would be happier and safer. Think about it. I'll be looking for your comments on my blog.

News and Events

Remembering NASA's Fallen Heroes ›

On Jan. 26, Glenn employees gathered to acknowledge NASA's Day of Remembrance honoring the fallen heroes of the Apollo 1, Challenger and Columbia crews, as well as all other members of the NASA family who have lost their lives furthering the cause of exploration and discovery. A brief ceremony included remarks and personal reflections by Center Director Lugo and Associate Director of External Programs Greg Johnson (pictured), a moment of silence and the viewing of an Astronaut Memorial Tribute video.

C-2012-245 Photo by Michelle Murphy

Glenn Goes Red! ˇ

C-2012-458 Photo by Bridget Caswell

On National Wear Red Day, Feb. 3, many Glenn employees gathered in the Administration Building Auditorium for a photo to promote awareness of heart disease in women.

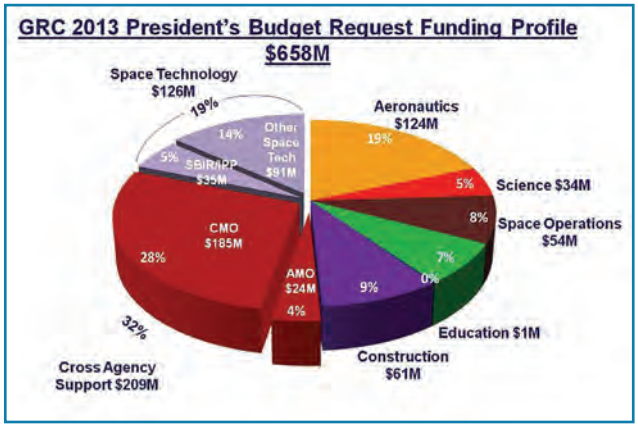
Achieving the Unexpected ˇ

Photo by Bridget Caswell

The Honorable Judge Michael J. Ryan delivered a moving keynote address during Glenn's 12th Annual Dr. Martin Luther King Jr. Equality Recognition Ceremony on Jan. 24. Judge Ryan shared how Dr. King's example of perseverance and the support of Ryan's teachers bolstered his determination to do the unexpected—escape the despair of a dysfunctional family to become a high achiever.

FY 2013 Budget Roll Out Highlighted

Continued from page 1



Generation Air Transportation System (NextGen) and making commercial aviation safer, more fuel efficient, quieter and more environmentally friendly through investments in revolutionary concepts for air vehicles and air traffic management.

Space Operations

Glenn is slated to receive $54 million to support biological and physical research for the International Space Station, operation and evaluation of the SCAN Testbed (see page 4), and other communication technology investigations. The slight decrease reflects the NASA Docking System reduction, with potential for restoring funding later in FY 2013.

Exploration

The $49 million proposed for Exploration is slightly less than previous years, but it allows Glenn's continuous support to the development of the Space Launch System and Orion Multi-Purpose Crew Vehicle. Glenn also contributes to the Human Research Program, performing research and technology development of next-generation systems that support humans in space; and the Advanced Exploration Systems program, which is contributing technology advancements for future robotic and human spaceflight missions beyond low Earth orbit.

Science

The Science mission budget will be reduced 28 percent due to planned reduction in work associated with the Stirling engine research and development. The budget offers $34 million for research and technology, including radioisotope power systems and solar electric propulsion.

Education

The Education budget will be reduced. However, the exact amount is not known at this time. The Office of Education is working with other agencies through the Office of Science & Technology Policy-led Committee on STEM Education and the Executive Office of the President to fund coordinated and effective student and teacher opportunities.

Cross-Agency Support

NASA leadership, agencywide, is undertaking several initiatives to improve operational and administrative efficiencies in FY 2013 to help the agency achieve targeted savings of at least $200 million.

During the Feb. 6 All Hands Meeting, Center Director Lugo unveiled Glenn's savings plan, called "GRC Working Smarter." The plan will be phased in over the next 4 months, one directorate at a time, to collect and analyze data for potential modification to its "belt-tightening" activities.

Phase I includes consolidating travel processing in one location or creating "pods," (smaller groups) that would be strategically located around the center. Phase I also includes participating in an online training needs assessment—Glenn Training and Development Awareness—to help budget training dollars, more effectively.

Lugo also gave an update on Glenn's evolving Strategic Plan and highlighted four "levers of control" that help frame a course of action leading to an opportunity. They include the following: Building Better Relationships within NASA and with industry partners; Aligning Constrained Resources; Taking Control of One's Destiny; and Driving a Culture of Accountability.

"The plan is not perfect, but it allows us to better anticipate the future, rather than react to the environment," Lugo said. "We decided to actively pursue commercializing Glenn technologies a year ago, which coincides with the President's issuance of an Executive Order directing all federal agencies to do more about commercializing."

The FY 2013 budget request calls for a reduction in the size of the civil service workforce, from 1642 to 1628. Lugo anticipates the mandate to cut 14 federal employees will be met through attrition.

Construction and Environmental Restoration

The proposed $60 million budget for Construction and Environmental Compliance Restoration includes: $22 million for replacement of essential electrical and mechanical systems at NASA's Space Power Facility at Plum Brook Station; $11 million for Phase I of the project to repair water system main piping at Lewis Field; and $25 million will enable Phase I repairs to the steam distribution system and the electrical distribution and control systems as part of minor revitalization project at Lewis Field. Construction of other facilities that are part of the center's master plan will be pushed back by 5 or 6 years.

"While NASA has to make tough choices on existing priority programs, the proposed investment to restore infrastructure at Lewis Field and Plum Brook, clearly conveys a desire to maintain Glenn capabilities," Lugo said proudly.

To learn more about NASA's proposed budget for FY 2013, visit http://www.nasa.gov/news/budget.

—By S. Jenise Veris

NASA Scholarship Fund

The application deadline for the NASA College Scholarship Fund (NCSF), 2012-2013 school year, is March 31. The NCSF, Inc., a Texas nonprofit organization, awards scholarships Agencywide to qualified dependents of NASA and former NASA employees. Up to five scholarships will be awarded in the amount of $2,000 each. The scholarship is renewable for a maximum of $8,000 over 6 calendar years. For information on eligibility, visit http://nasapeople.nasa.gov/nasascholarship or call Lynne Sammon, 216-433-3952.

Glenn's SCaN Testbed to Advance Communications

Continued from page 1

"I'm proud of the work of this team," Lugo said. "It's been a challenging project that required a lot of center resources, and many people gave a lot of their personal time. But we came together as a team and delivered a great product!"

Novel Technology

The SCaN Testbed enables future NASA missions by employing a new generation of software-defined radios (SDRs) for researchers to develop, test and demonstrate new radio frequency (RF) communications, networking and navigation capabilities in the realistic environment of space.

Three different SDRs, including the first reconfigurable radio using Ka-band frequency, will be used over the payload's 5-year planned life in orbit. In addition, the payload consists of the Antenna Positioning System, a five-antenna RF subsystem and an avionics subsystem that controls flight system components.

"An SDR can be reconfigured many times during its lifetime, which makes it unique," explained Diane Malarik, project manager for the SCaN Testbed. "This is made possible by software changes that are sent to the device, allowing scientists to use it for a multitude of functions, some of which might not be known before launch. Traditional radio devices cannot be upgraded after launch."

The SCaN Testbed is the first incorporation of a common standard for reconfigurable devices, the Space Telecommunications Radio System (STRS) standard, meant to promote portability and re-use of applications between different radio types and vendors.

Cooperative Effort

The project leveraged expertise from multiple NASA and commercial organizations to form cooperative partnerships to ensure success. Conceived by Richard Reinhart, Digital Communications and Navigation Branch, the testbed's development was led by Glenn, with support from NASA's Goddard Space Flight Center and Jet Propulsion Laboratory (JPL).

Pictured right: Project Manager Malarik, far right, points out features of the testbed to local media. Below: Project team members meticulously apply a special wrap to the hardware prior to shipment.

C-2012-630

C-2012-681 Photos by Bridget Caswell

The core of the SCaN Testbed is its three radios, one of which was provided by NASA's JPL and built in Ohio by Cincinnati Electronics (S and L-band). The other two radios were built under cooperative agreements with General Dynamics (S-band) and Harris Corporation (Ka-band).

"The companies kicked in half the cost of the radio—$13 million—with their own internal research and development funds just to get in on the ground floor with us on this technology," Malarik said.

Director Lugo proudly added that $60 million of the project was spent in Northeast Ohio.

Expertise and Dedication

Glenn was responsible both for project management, including the schedule, budget and risk, and integration management duties with the ISS, Japanese Aerospace Exploration Agency (JAXA) and other centers. Glenn employees developed requirements, designed and built the various subsystems and integrated them into the payload. Onsite testing facilities were used to conduct vibration, electromagnetic interference, thermal vacuum capability and functional and performance testing.

Although Glenn has space communications expertise, this project tested the center's capabilities to the limit. Plagued by tight schedules, budget constraints and technical roadblocks, the CoNNeCT team—with the support of center management and employees across the center—persevered and achieved their goal. Critical decisions were made to overcome several obstacles between Preliminary Design Review (summer 2009) and System Acceptance Review (fall 2011) under the tenacious leadership of then project manager, Ann Over, and chief engineer, Mike Barrett.

"The amazing part of this project is the people," Malarik said. "So many disciplines came together to build this

Continued on next page

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hardware, and wonderfully dedicated folks worked almost around the clock to get it out the door on time. I couldn't be prouder of my project team… and of my payload."

Utilization and Operations

After the JAXA transfer vehicle docks with ISS, a series of orchestrated robotic arm handoffs will install the SCaN Testbed as an external payload. The checkout and commissioning will then commence. Operational scenarios utilize the Tracking and Data Relay Satellite System (TDRSS), direct-to-ground, or the Global Positioning Satellite (GPS) system.

C-2012-808 Photo by Michelle Murphy

C-2012-649 Photo by Bridget Caswell

C-2011-1004 Photo by Michelle Murphy

Pictured, clockwise above: Employees recognized Rich Reinhart, who conceived the communications testbed, during a celebration gathering. • Glenn technicians prepared for thermal-vacuum testing in the Space Environment Simulation Chamber at Lewis Field. • Left to right: In the Telescience Support Center, Badri Younes, SCaN deputy associate administrator and program manager; Beth Curtis, Mission Operations Team; John Rush, SCaN Technology and Standards Division director; and Dean Schrage and Steve Sinacore (lead), Mission Operations Team.

Mike Zernic, deputy project manager, said Glenn's role is far from over. "Our personnel will conduct operations from Glenn's Telescience Support Center," he explained. "We'll also be operating a Ground Integration Unit in the same building, which is a robust representation of the on-orbit testbed. Users can test ideas here until the waveforms (software applications) are mature enough to be exercised on the actual SCaN Testbed."

Reinhart said several experiments are already in the queue and each should require about 9 months of testing. In the meantime, industry and university researchers will be invited to submit experiment proposals.

—By Doreen B. Zudell

Glenn Offers Free Facility Tours

NASA will offer free tours of its laboratory and testing facilities one Saturday a month from April through October.

The tours are open to U.S. citizens and lawful permanent residents of all ages. Tour space is limited and reservations are required to guarantee admission. Reservations can be made up to 30 days in advance, or depending on available space, at least one day before the actual tour date. To register, visitors should call 216-433-9653. Adult visitors are required to present government-issued photo identification. Lawful permanent residents are required to present their permanent resident card.

A tour bus will depart from Glenn's main gate every hour beginning at 10 a.m. The last tour departs at 1 p.m. Each tour lasts about 45 minutes and is followed by a stop at Glenn's gift shop. Visitors with special needs are permitted to use their own vehicles, but must follow the tour bus at all times. Most research facilities are wheelchair accessible; however, some have limited accessibility.

The tours give visitors a chance to learn about Glenn's capabilities and to talk with engineers and scientists who work in the facilities. For more information, visit http://www.nasa.gov/centers/glenn/events/tours.html.

2012 Tours

April 7: Green Lab Research Facility
May 5: Telescience Support Center
June 2: 10- by 10-Foot Supersonic Wind Tunnel
July 14: Icing Research Tunnel
Aug. 4: Simulated Lunar Operations
Sept. 8: Exercise Countermeasures Laboratory
Oct. 6: Zero Gravity Research Facility

C-2006-2404 Photo by Michelle Murphy

Simulated Lunar Operations Facility.

Awards, Honors and Promotions


Dr. Goldsby

Dr. Jon C. Goldsby was recognized at the Black Engineer of the Year Awards STEM Global Competitiveness Conference in Philadelphia on Feb. 19. Goldsby, a materials research engineer in the Ceramics Branch, Structures and Materials Division, received the "Outstanding Technical Contribution in Government" award for his leadership in advancing the development of ceramic materials for aerospace applications, and for a strong commitment to education and outreach developing an advanced course in electricity and magnetism theory to prepare future engineers.


Dr. Misra


Vyas


Dr. Zaman

Dr. Ajay Misra, chief of the Structures and Materials Division, earned the highest individual award at the 26th National Convention of the American Society of Engineers of Indian Origin (ASEIO). Misra received the "Service Excellence Award," for exemplary leadership resulting in notable and/or highly innovative achievements or expansions of the ASEIO mission to foster career and professional development for ASEIO members and cultivate engineering, scientific and technical exchanges between the United States and India. Additionally, **Dr. Khairul Zaman** and **Manan Vyas**, Inlet and Nozzle Branch, received ASEIO Corporate Excellence Recognition Program awards for "Engineering Excellence" and "Young Engineer of the Year." The awards recognize outstanding engineers of Indian origin who are employed in industry, academia or government entities based on achievements, innovation, leadership, teamwork, integrity, community service and leadership roles in other professional societies.

Dr. Samuel Howard and **Dr. Christopher DellaCorte**, Tribology and Mechanical Components Branch, received a NASA Goddard Space Flight Center, NASA Group Achievement Award for their contributions to the Sample Analysis at Mars (SAM) instrument package, better known as Curiosity. They were part of the National Engineering Safety Center technical review team that helped mitigate tribological and rotordynamic issues related to delivery of the instrument to the mission, which launched last November.

John Selby has been selected chief of the Project Management Branch, Facilities Division. He has over 40 years of relevant experience and most recently led the Construction Support Team for the design-build development of a space environmental testing capability at the Space Power Facility at Plum Brook Station.


Selby


Smith

Nicole Smith has been selected senior project manager for Glenn's Multipurpose Crew Vehicle(MPCV)/Crew and Service Module (CSM)in the Launch and Crewed Systems Office. Smith previously served as deputy project manager for the Systems Environmental Test Facility Vibroacoustic Test Capability. Her most recent assignment was Legislative Fellow in the office of Sherrod Brown, U.S. Senator for Ohio.

Retirements

Casey Blaze, Manufacturing Division, Engineering Directorate retired on March 3, 2012, with 40 years of NASA service.


Blaze

Anthony Christian, Safety Health and Environmental Division, Safety and Mission Assurance Directorate, retired on Feb. 1, 2012, with 39 ½ years of federal service, including nearly 33 with NASA.


Christian

Jean Rogers, Community and Media Relations Office, External Programs Division, retired on March 2, 2012 with 32 ½ years of federal service, including 28 with NASA.


Rogers

In Appreciation

The Cierchacki and Kelley family would like to thank all our friends and coworkers for their prayers and expressions of sympathy on the passing of my sister, Janine (nee Cierchacki) Kelley. We are blessed to have you as our extended family and appreciate your thoughtfulness. —Irene Cierchacki and Raymond Kelley (spouse)

"I would like to thank all my friends and colleagues for their support during the extremely difficult time of the passing of my mother, Rena V. Niece. I truly appreciate all the cards and heart-felt condolences. A special thanks to those who were able to be with my family and me during visitation hours and the funeral. I am blessed to work with such caring people, and my family and I sincerely thank you." —Lesha Zvosec

Calendar

IFPTE LOCAL 28, LESA MEETING: LESA will hold its next membership meeting on Wednesday, March 14, at noon in the Employee Center's Small Dining Room.

FIRST VOLUNTEERS NEEDED: Volunteers are needed for the 2012 FIRST Buckeye Regional Robotics Competition in a variety of positions. Both rookie and veteran volunteers are welcome. Be part of this exciting competition on March 22–24. POC: Sally Harrington, 216–433–2037. For more details, go to http://www.oai.org/firstbuckeye/documents/FRCBuckeye_Call_for_Volunteers.pdf.

EARTH DAY/AMERICA RECYCLES: Both days will be recognized through a series of environmental awareness events and activities, each month, between April and November, culminating with a sustainability fair in August. This year's fair theme is "Greening NASA GRC—One Event at a Time." Stay tuned!

Printing Error

The names of employees featured in the "Awards, Honors and Promotions" column of the February 2012 *AeroSpace Frontiers* were omitted in the printing process. Please refer to the online issue for names: http://aerospacefrontiers.grc.nasa.gov.

Check out NASA Glenn's Exchange Online Gift Shop
www.nasagiftshop.com

FOLLOW NASA GLENN ONLINE

Article Deadlines

News items and brief announcements for publication in the April issue is noon, March 23. Larger articles require at least one month notice.

READ US ON THE INTERNET:
http://aerospacefrontiers.grc.nasa.gov

Hermes Award 2010-2011

2010 APEX AWARDS FOR PUBLICATION EXCELLENCE

In Memory

Royce W. Myhre, 88, who retired in 1984 with 24 years of federal service, died Nov. 23, 2011. He served in the Army Air Corps during WWII and as an electrical engineer for the United Air Lines, before joining NASA Lewis' workforce in 1963. Myhre made contributions to two major programs: the Agena rocket and the communications satellites. He participated in Agenda launches including Lunar Orbiter C, Pageos, OCO-C and OGO-D. He helped develop the aircraft-to-satellite data relay (ASDAR) units that still fly and provide weather data for jet aircraft on global routes. He won a 1980 merit award as a member of the Proof-of-Concept Task Team that proved the feasibility of crucial hardware items, such as the 30/20-Gigahertz transmitter for the ACTS (Advanced Communications Technology Satellite) program. He later earned a 1984 R&D 100 award as a member of the team that developed the Multiple-Beam Communications Antenna System. His son, Craig Myhre, is currently employed in NASA Glenn's Space Science Project Office.

Reinberger

Robert N. Reinberger, 88, who retired in 1987 with 24 years of NASA service, died March 16, 2011. Reinberger was a veteran who joined the NASA workforce and became a member of the NASA Lewis launch vehicles staff for the majority of his career. He worked on the Agena and Centaur rocket projects. His contributions merited travel to Cape Kennedy and the Western Test Range Agena and Centaur launches including OGO–A, OGO–D and Pageos in 1964. It was noted, in a 1983 technical report, that the Atlas G development was "due in part to the excellent design, analysis and test development by Robert N. Reinberger."

Joseph J. Sanna, Jr., 88, who retired in 1984 with 20 years of NASA service, died Nov. 26, 2011. Sanna was a purple-heart decorated veteran of the U.S. Army, WW II, who joined the NASA workforce from private industry. He served NASA as a carpenter in the Facilities Operations and Maintenance Division.

Sozio

Dominic J. Sozio, 79, who retired in 1974 with 40 years of federal service, died Nov. 13, 2011. Sozio was a U.S. Army Korean War Veteran, who began his NASA career as an apprentice graduating in 1959 as a mechanical engineering technician. Sozio was a dedicated employee of the Facilities Operations Division, who is remembered as an outstanding millwright that had a keen knowledge of all the equipment at the lab.

Chris Themes, 65, who retired in 1995 with 30 years of NASA service, died Nov. 11, 2011. Themes served in the Construction Management Branch, Facilities Engineering Division. He had the distinction of being the construction manager of the fiscal year 1994 Construction of Addition to the Chemistry Laboratory, which was among NASA's first group of Metric Pilot Projects; that is, all work associated with architectural engineering and construction was done in the International System of Units. It also was one of the most challenging because it was a third-floor expansion instead of a ground-floor expansion. Themes also oversaw construction of the Advanced Subsonic Combustion Rig, Glenn's state-of-the-art facility that supports research on multiple fuel injector test hardware for large aircraft engine development and full-scale annular combustor development to help reduce emissions. He earned numerous Special Act/Service Awards between 1987 and 1995.

Emergency and Inclement Weather Lines

Lewis Field: 216–433–9328 (WEAT)
Plum Brook Station: 419–621–3333

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Future Leaders Go Back to School

Course Offers Comprehensive Curriculum

Empowering a workforce to succeed in times of change and uncertainty can be a daunting undertaking, but a group of employees who recently graduated from the Glenn Leadership University believe they are up to the challenge.

The 20 employees are members of the first class to complete a multifaceted leadership program championed by Center Director Ray Lugo and developed by Glenn's Human Capital Development Division (HCDD).

"The Leadership University is innovative and comprehensive," Program Manager Adam Ross said. "Its cutting edge content and resource material sets it apart from other leadership programs. It takes an holistic approach and targets all types of disciplines and employees."

Ross said the HCDD team dedicated months talking with industry leaders and researching characteristics and competencies of successful leaders to develop the curriculum for this new program.

Operated under a university concept, each student chose a "track"—supervisory, project, technical or management—in which to specialize over a period of three semesters. The semesters focused on (1) Self-Awareness (individual introspection) (2) Leadership of Teams (team projects, group activities) and (3) Leadership of Organization (change leadership, strategic thinking).

C-2012-191 Photo by Quentin Schwinn

Pictured, left to right, top row: Schabes, Ross (program manager), Wadel, Clapper, Smith, Tolbert, Zakany and Wilson. Bottom row: Kortes, Hinshaw, Pham, Arena, Mobley, Sadler, Harris, Hagerman, Kraft, Perez, Tomaro, Sutliff and Castner.

During a graduation ceremony on Jan. 18, Deputy Director Jim Free congratulated the participants for undertaking the 18-month program. He encouraged them to trust their experiences and abilities, and he stressed that opportunities for good leadership often come in unexpected ways.

Ross and his team are in the process of evaluating the pilot year of the program. They expect the next class to start this summer.

"I am proud to be associated with the creation of Leadership University and the first class of participants," Director Lugo said. "I believe this class and future classes will be better prepared to lead the Glenn Research Center into the exciting future that lies ahead."

—By Doreen B. Zudell

Congratulations Graduates

Jonathan Arena • Raymond Castner • Carolyn Clapper • Vicki Hagerman • Kaprice Harris • Thomas Hinshaw • Trudy Kortes • Thomas Kraft • Priscilla Mobley • Michael Perez • Kimlam Pham • Gerry Sadler • Harvey Schabes • James Smith • Daniel Sutliff • Carol Tolbert • Christi Tomaro • Mary Wadel Barbara Wilson • James Zakany